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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/895,768	06/29/2001	Michael H. Chu	2207/11234	6925

7590 04/17/2007

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EXAMINER	
WANG, JIN CHENG	
ART UNIT	PAPER NUMBER
2628	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/17/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/895,768	CHU ET AL.	
	Examiner	Art Unit	
	Jin-Cheng Wang	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 January 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15,19 and 21-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15, and 19, 21-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicant's submission dated 11/21/2006 has been entered. Claims 1-7, 9-10 and 19 have been amended. Claims 16-18 and 20 have been canceled. Claims 1-15, and 19, 21-29 are pending in the present application.

Response to Arguments

Applicant's arguments filed 11/21/2006 and 1/22/2007 are moot in view of the new ground of rejection set forth in the present Office Action.

Applicant's specification in Page 4 describes the capability of ADOBE After Effects for performing the steps set forth in the claim invention. Therefore, Adobe After Effects is cited in this Office Action. It is concluded that Adobe After Effects has taught the claim invention.

Moreover, ON PAGE 5 of Applicant's specification, it is stated, "the method is advantageous because it is straightforward to implement with commercial software currently available and produces high quality video."

Applicant has used commercial software to come up with the claim invention, at least the specification in Pages 1-5 preceding the above-quoted passage. Because commercial software constitutes the prior art, the commercial software has taught the applicant's claim invention as Applicant admitted of implementing it to arrive at the method (the claimed invention) and to obtain the high quality video.

As addressed in the present Office Action, Claims 1-15, 19, and 21-29 are rejected under 35 U.S.C. 102(b) as being anticipated by **Adobe After**

Effects Version 4.1 for Macintosh and Windows (www.adobe.com) wherein a portion of the quoted material is attached for the applicant's convenience, applicant is requested for provide information disclosure for this document which applicant has admitted using this commercial software to come up with the claim invention.

AS ADDRESSED BELOW, Adobe After Effects Version 4.1 published in 2000 has taught the claim invention set forth in the claim 1.

Adobe After Effects Version 4.1 teaches "rendering a plurality of full frames at a whole number of multiple of a digital video resolution value defining the number of pixels contained in each full frame of the plurality of full frames and at a whole number multiple of a temporal resolution value defining the rate of display of the plurality of full frames on a computer screen". This function is accomplished with Adobe After Effects Version 4.1 within Chapter 4: Composition Settings window, e.g., Fig. 4.8, by changing the Frame Rate, Frame Size having width and height of the image frames wherein the frame resolution may be set from 160*120 to 320 **240 or 640***480 which is a whole number of multiple of a digital video resolution value defining the number of pixels. The frame rate may be set to 30 fps or 60 fps at a whole number multiple of a temporal resolution value defining the rate of display of the plurality of full frames. Additionally, Adobe After Effect Version 4.1 teaches that compositions describe how layers are

arranged in space and time, you must define a composition's spatial attributes, such as its frame size and pixel aspect ratio, as well as temporal aspects such as its duration and frame rate. Composition settings allow you to specify these characteristics, in addition to the resolution or quality of the display of the Composition window. You may change any of the composition settings at any time. See also Chapter 16, Choose Render Setting, wherein the frame rate and frame resolution as well as Frame Blending, Motion Blue, are set through the Render Settings window.

Adobe After Effects Version 4.1 teaches, "Resizing each full frame of the plurality of full frames to produce a plurality of antialiased frames". Adobe After Effect Version 4.1 teaches in Chapter 16, resizing each full frame of the plurality of full frames to produce a plurality of antialiased frames, for example, in Output Module Settings window, one can stretch/resize each full frame that determines the output file format for the movie/composition format in the motion files, TIFF or PICT sequences of frames and one can import into project when done so that the rendered composition or the sequence of frames put back into the project. Adobe After Effect Version 4.1 teaches in Fig. 7.22 of Chapter 7 to scale/resize the frame content of each full frame. Adobe After Effect Version 4.1 teaches in Chapter: Composition Settings Window to resizing each full frame by changing the spatial resolution of each full frame. Adobe After Effect Version 4.1 teaches in Chapter 12 Frame Blending which resizes the plurality of full frames temporally, e.g., from 15 fps to 30 fps by interpolating frames and thus resizing the plurality of full frames. Adobe After Effect Version 4.1 teaches in Chapter 2 using the alpha channel to create anti-aliased frames (See Fig. 2.44) and in Chapter 12 using alpha manipulation mode to create anti-aliased frames (See Fig. 12.40). Adobe After Effects Version 4.1 teaches in Chapter 12 "blur

comp" window of Fig. 12.5 to produce an animated layer that appears sharp and distinct as it moves through the frame of the composition. To simulate the effect over time by setting key frames, the Motion Blur switch is activated for an animated layer. Adobe After Effects Version 4.1 teaches "Keyframe Interpolation" for providing spatial and temporal interpolation. One can view and control temporal interpolation in a speed, value or velocity path to produce smooth frames.

Adobe After Effects Version 4.1 teaches "frame blending" by activating the Frame Blending switch. When Frame Blending is on, After Effects interpolates between original frames, blending them, rather than simply repeating them and thus producing smooth frames without the jerky appearance.

Adobe After Effects Version 4.1 teaches "blending each consecutive antialiased frame". Adobe After Effects Version 4.1 teaches "frame blending" by activating the Frame Blending switch (See for example, Fig. 16.32 in the Frame Blending pull-down menu, choose Frame Blending switch which specifies whether frame blending will be applied). When Frame Blending is on, After Effects interpolates between original frames, blending them, rather than simply repeating them and thus producing smooth frames without the jerky appearance. Blending under various modes are also taught in Chapter 2 such as Stencil and Sihouette Modes and Alpha Manipulation Modes to produce anti-aliased frames (See Figs. 12.40-12.43).

AS ADDRESSED BELOW, Adobe After Effects Version 4.1 published in 2000 has taught the claim invention set forth in the claim 2.

Adobe After Effects Version 4.1 teaches "rendering a plurality of full frames at a whole number of multiple of a digital video resolution value defining the number of pixels contained in each full frame of the plurality of full frames and at a whole number multiple of a temporal resolution value defining the rate of display of the plurality of full frames on a computer screen". This function is accomplished with Adobe After Effects Version 4.1 within Chapter 4: Composition Settings window, e.g., Fig. 4.8, by changing the Frame Rate, Frame Size having width and height of the image frames wherein the frame resolution may be set from 160*120 to 320 **240 or 640***480 which is a whole number of multiple of a digital video resolution value defining the number of pixels. The frame rate may be set to 30 fps or 60 fps at a whole number multiple of a temporal resolution value defining the rate of display of the plurality of full frames. Additionally, Adobe After Effect Version 4.1 teaches that compositions describe how layers are arranged in space and time, you must define a composition's spatial attributes, such as its frame size and pixel aspect ratio, as well as temporal aspects such as its duration and frame rate. Composition settings allow you to specify these characteristics, in addition to the resolution or quality of the display of the Composition window. You may change any of the composition settings at any time. See also Chapter 16, Choose Render Setting, wherein the frame rate and frame resolution as well as Frame Blending, Motion Blue, are set through the Render Settings window.

Adobe After Effects Version 4.1 teaches, "Resizing each full frame of the plurality of full frames to antialias each full frame of the plurality of frames". Adobe After Effect Version 4.1 teaches in Chapter 16, resizing each full frame of the plurality of full frames to produce a plurality of antialiased frames, for example, in Output Module Settings window, one can

stretch/resize each full frame that determines the output file format for the movie/composition format in the motion files, TIFF or PICT sequences of frames and one can import into project when done so that the rendered composition or the sequence of frames put back into the project. Adobe After Effect Version 4.1 teaches in Fig. 7.22 of Chapter 7 to scale/resize the frame content of each full frame. Adobe After Effect Version 4.1 teaches in Chapter: Composition Settings Window to resizing each full frame by changing the spatial resolution of each full frame. Adobe After Effect Version 4.1 teaches in Chapter 12 Frame Blending which resizes the plurality of full frames temporally, e.g., from 15 fps to 30 fps by interpolating frames and thus resizing the plurality of full frames. Adobe After Effect Version 4.1 teaches in Chapter 2 using the alpha channel to create anti-aliased frames (See Fig. 2.44) and in Chapter 12 using alpha manipulation mode to create anti-aliased frames (See Fig. 12.40). Adobe After Effects Version 4.1 teaches in Chapter 12 "blur comp" window of Fig. 12.5 to produce an animated layer that appears sharp and distinct as it moves through the frame of the composition. To simulate the effect over time by setting key frames, the Motion Blur switch is activated for an animated layer. Adobe After Effects Version 4.1 teaches "Keyframe Interpolation" for providing spatial and temporal interpolation. One can view and control temporal interpolation in a speed, value or velocity path to produce smooth frames.

Adobe After Effects Version 4.1 teaches "frame blending" by activating the Frame Blending switch. When Frame Blending is on, After Effects interpolates between original frames, blending them, rather than simply repeating them and thus producing smooth frames without the jerky appearance.

Adobe After Effects Version 4.1 teaches "blending each consecutive frame of the plurality of full frames". Adobe After Effects Version 4.1 teaches "frame blending" by activating the Frame Blending switch (See for example, Fig. 16.32 in the Frame Blending pull-down menu, choose Frame Blending switch which specifies whether frame blending will be applied). When Frame Blending is on, After Effects interpolates between original frames, blending them, rather than simply repeating them and thus producing smooth frames without the jerky appearance. Blending under various modes are also taught in Chapter 2 such as Stencil and Sihouette Modes and Alpha Manipulation Modes to produce anti-aliased frames (See Figs. 12.40-12.43).

Adobe After Effects Version 4.1 teaches the claim limitation of "Blending the colors and images depicted in pixels that are within a Gaussian blur radius value of a center pixel, wherein the number of pixels blended is proportional to a Gaussian blur radius". See "Using the Compound Blur Effect". In particular, See Chapter 11, Fig. 11.25, Choose Effect>Blue&Sharpen>Gaussian Blur which allows a specification of Gaussian blue radius. See also Chapter 12, Motion Blur, in Fig. 12.5, it shows an animated layer appears sharp (anti-aliased) and distinct as it moves through the frame of the composition. To simulate this effect, activate the Motion Blur switch for an animated layer in a sequence of frames (See Fig. 12.8 wherein the Motion Blur can be applied to a plurality of frames).

Adobe After Effects Version 4.1 teaches the claim limitation of "Separating each full frame of the plurality of full frames into first and second fields, wherein the first fields contain the even lines of the plurality of full frames and the second fields contain the odd lines of the plurality of full frames". See Fig. 16.33 in the Field Render pull-down menu wherein Field Render specifies whether to field render the output movie). See also Figure 2.71 for Choosing

the correct field from Fields and Pulldown menu for choosing/rendering first upper/odd fields or lower/even fields and thereby separating each full frame into first and second fields for the interlaced video. The Upper Field First-Correctly separates the fields of upper/odd-field source files in which the odd fields are displayed first. The lower/even-field First-correctly separates the fields of lower-field source files wherein the even fields are displayed first.

Adobe After Effects Version 4.1 teaches the claim limitation of Alternately displaying the first and second fields. See Frame Blending pull-down menu in Chapter 16, Fig. 16.27-16.34 wherein full resolution frames are rendered by choosing the appropriate settings for frame resolution, frame blending rate, Motion Blur, and Field Render setting for rendering the odd/fields and/or even fields, etc.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-15, 19, and 21-29 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-15

Claim 1 applies a computer program as part of a seemingly patentable process, however, claim 1 in reality seeks patent protection for the computer program as evidenced by the lines 18-19 in Page 5 of applicant's specification and the claim 15 wherein it is stated that "this method is

advantageous because it is straightforward to implement with commercial software currently available". Computer program per se is neither computer components nor statutory process. Thus, claim 1 is non-statutory.

Additionally, since claim 1 includes a 101 judicial exception, claim 1 must be for a practical application of the judicial exception. As is, claim 1 failed to recite either a physical transformation or produces a useful and tangible result. Thus, claim 1 is also non-statutory for this reason.

Claims 2-15 are non-statutory for the same reasons discussed above.

Claims 19 and 21-29:

Claim 19 applies a computer program as part of a seemingly patentable apparatus, however, claim 19 in reality seeks patent protection for the computer program as evidenced by the lines 18-19 in Page 5 of applicant's specification and the claim 15 wherein it is stated that "this method is advantageous because it is straightforward to implement with commercial software currently available". Computer program per se is neither computer components nor statutory process. Thus, claim 19 is non-statutory.

The claim 19 includes a 101 judicial exception, claim 19 must be for a practical application of the judicial exception. As is, claim 19 failed to recite either a physical transformation or produces a useful and tangible result. Thus, claim 19 is also non-statutory for this reason.

Claims 21-29 are non-statutory for the same reasons discussed above.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-2, 3-11, 12-15, 19 and 21-29 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claim limitation of "rendering a plurality of full frames at a whole number multiple of a digital video resolution value defining the number of pixels contained in each full frame of the plurality of full frames and at a whole number multiple of a temporal resolution value defining the rate of display of the plurality of full frames on a computer screen; resizing each full frame of the plurality of full frames to produce a plurality of antialiased frames and blending each consecutive antialiased frame" set forth at least in the claim 1 was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. These claim languages are not supported by applicant's specification at least for the reasons below.

In a non-limiting example, applicant speculates that "resizing each full frame" may produce a plurality of antialiased frame. However, this claim limitation is not supported by the applicant's specification. How such resizing could provide antialiased frame is uncertain and how resizing each full frame could be related to the plurality of full frames. In the same manner,

applicant speculates blending each consecutive antialiased frame. These claim languages are not supported by applicant's specification.

The claim 1 also recites "the plurality of full frames" in lines 3-4 of the claim 1. However, the plurality of full frames does not correspond to a plurality of full frames set forth in the line 2 of the claim and as a result, the rendering step lacks support from the specification. Both applicant's specification and claim have not particularly point out the INPUT image frames to and the OUTPUT image frames from any of the steps for the rendering, interpolating and blending steps. It should be noted that the animated full frames are different from the (original) full frames before animation. However, when the keyword "animated" is omitted from "the animated full frames", the sentence does not make sense at all.

While "rendering a plurality of full frames" in the line 2 of the claim 1 refers to rendering full frames as outputs, i.e., each of the full frames as rendered has a whole number of multiple of a digital video resolution value and a whole number multiple of a temporal resolution value. "Each full frame" in the line 3 of the claim 1 refers to the full frame **as input to** the rendering step because each full frame only has a digital video resolution value **less than** the digital video resolution value of "full frames" (after being rendered) set forth in "rendering a plurality of full frames". "Display of the plurality of full frames" refers to the full frames as input to the rendering step because these full frames are displayed having a temporal resolution value less than the full frames (after being rendered) set forth in "rendering of full frames". Moreover, applicant speculated that "resizing each full frame of the plurality of full frames" in line 5 of the claim 1 may refer to the full frames as input to the rendering step, which is not described in the specification.

Therefore, these claim limitations set forth in the claim 1 are not described in the specification in such a way that as to reasonably convey to one of the ordinary skill in art had possession of the claimed invention.

Claims 3-8 and 12-15 depend upon the claim 1 and are rejected due to their dependency on the claim 1.

Claim 2 is subject to the same rationale of rejection set forth in the claim 1.

The claims 9-11 depend upon the claim 2 and are rejected due to their dependency on the claim 2.

The claim 19 is subject to the same rationale of rejection set forth in the claim 1.

The claims 21-29 depend upon the claim 19 and are rejected due to their dependency on the claim 19.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-15, 19 and 21-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For example, the claim limitation of "rendering a plurality of full frames at a whole number multiple of a digital video resolution value defining the number of pixels contained in each full frame of the plurality of full frames and at a whole number multiple of a temporal resolution value defining the rate of display of the plurality of full frames on a computer screen;

resizing each full frame of the plurality of full frames to produce a plurality of antialiased frames and blending each consecutive antialiased frame" set forth at least in the claim 1 is vague and what kind of operations of resizing and blending perform cannot be ascertained. Clarification is required.

Claims 3-8 and 12-15 depend upon the claim 1 and are rejected due to their dependency on the claim 1.

Claim 2 is subject to the same rationale of rejection set forth in the claim 1.

The claims 9-11 depend upon the claim 2 and are rejected due to their dependency on the claim 2.

The claim 19 is subject to the same rationale of rejection set forth in the claim 1.

The claims 21-29 depend upon the claim 19 and are rejected due to their dependency on the claim 19.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-15, 19, and 21-29 are rejected under 35 U.S.C. 102(b) as being anticipated by **Adobe After Effects Version 4.1 for Macintosh and Windows (www.adobe.com)**.

The Adobe After Effects are well known to one of the ordinary skill in the computer graphics art. Due to the related copyright law and regulations, the software and/or the book chapters for the Adobe After Effects Version 4.1 as related to the claim invention are not furnished. However, applicants are requested to provide information disclosures on the Adobe After Effects which applicant had employed to come up with the method (claim invention) as the applicant's specification has described. Applicant had used the Adobe After Effects in implementing the method set forth in the applicant's specification.

Claim 1:

Adobe After Effects Version 4.1 published in 2000 has taught the claim invention.

Adobe After Effects Version 4.1 teaches "rendering a plurality of full frames at a whole number of multiple of a digital video resolution value defining the number of pixels contained in each full frame of the plurality of full frames and at a whole number multiple of a temporal resolution value defining the rate of display of the plurality of full frames on a computer screen". This function is accomplished with Adobe After Effects Version 4.1 within Chapter 4: Composition Settings window, e.g., Fig. 4.8, by changing the Frame Rate, Frame Size having width and height of the image frames wherein the frame resolution may be set from 160*120 to 320 **240 or 640***480 which is a whole number of multiple of a digital video resolution value defining the number of pixels. The frame rate may be set to 30 fps or 60 fps at a whole number multiple of a temporal resolution value defining the rate of display of the plurality of full frames. Additionally, Adobe After Effect Version 4.1 teaches that compositions describe how layers are

arranged in space and time, you must define a composition's spatial attributes, such as its frame size and pixel aspect ratio, as well as temporal aspects such as its duration and frame rate. Composition settings allow you to specify these characteristics, in addition to the resolution or quality of the display of the Composition window. You may change any of the composition settings at any time. See also Chapter 16, Choose Render Setting, wherein the frame rate and frame resolution as well as Frame Blending, Motion Blue, are set through the Render Settings window.

Adobe After Effects Version 4.1 teaches, "Resizing each full frame of the plurality of full frames to produce a plurality of antialiased frames". Adobe After Effect Version 4.1 teaches in Chapter 16, resizing each full frame of the plurality of full frames to produce a plurality of antialiased frames, for example, in Output Module Settings window, one can stretch/resize each full frame that determines the output file format for the movie/composition format in the motion files, TIFF or PICT sequences of frames and one can import into project when done so that the rendered composition or the sequence of frames put back into the project. Adobe After Effect Version 4.1 teaches in Fig. 7.22 of Chapter 7 to scale/resize the frame content of each full frame. Adobe After Effect Version 4.1 teaches in Chapter: Composition Settings Window to resizing each full frame by changing the spatial resolution of each full frame. Adobe After Effect Version 4.1 teaches in Chapter 12 Frame Blending which resizes the plurality of full frames temporally, e.g., from 15 fps to 30 fps by interpolating frames and thus resizing the plurality of full frames. Adobe After Effect Version 4.1 teaches in Chapter 2 using the alpha channel to create anti-aliased frames (See Fig. 2.44) and in Chapter 12 using alpha manipulation mode to create anti-aliased frames (See Fig. 12.40). Adobe After Effects Version 4.1 teaches in Chapter 12 "blur

comp" window of Fig. 12.5 to produce an animated layer that appears sharp and distinct as it moves through the frame of the composition. To simulate the effect over time by setting key frames, the Motion Blur switch is activated for an animated layer. Adobe After Effects Version 4.1 teaches "Keyframe Interpolation" for providing spatial and temporal interpolation. One can view and control temporal interpolation in a speed, value or velocity path to produce smooth frames.

Adobe After Effects Version 4.1 teaches "frame blending" by activating the Frame Blending switch. When Frame Blending is on, After Effects interpolates between original frames, blending them, rather than simply repeating them and thus producing smooth frames without the jerky appearance.

Adobe After Effects Version 4.1 teaches "blending each consecutive antialiased frame". Adobe After Effects Version 4.1 teaches "frame blending" by activating the Frame Blending switch (See for example, Fig. 16.32 in the Frame Blending pull-down menu, choose Frame Blending switch which specifies whether frame blending will be applied). When Frame Blending is on, After Effects interpolates between original frames, blending them, rather than simply repeating them and thus producing smooth frames without the jerky appearance. Blending under various modes are also taught in Chapter 2 such as Stencil and Sihouette Modes and Alpha Manipulation Modes to produce anti-aliased frames (See Figs. 12.40-12.43).

Claim 4:

The claim 4 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of separating each frame into a first and a second field, wherein the first field

contains the even lines of a frame and the second field contains the odd lines of a frame. However, Adobe After Effects Version 4.1 teaches the claim limitation of "Separating each full frame of the plurality of full frames into first and second fields, wherein the first fields contain the even lines of the plurality of full frames and the second fields contain the odd lines of the plurality of full frames". See Fig. 16.33 in the Field Render pull-down menu wherein Field Render specifies whether to field render the output movie). See also Figure 2.71 for Choosing the correct field from Fields and Pulldown menu for choosing/rendering first upper/odd fields or lower/even fields and thereby separating each full frame into first and second fields for the interlaced video. The Upper Field First-Correctly separates the fields of upper/odd-field source files in which the odd fields are displayed first. The lower/even-field First-correctly separates the fields of lower-field source files wherein the even fields are displayed first.

Claim 5:

The claim 5 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of alternately displaying the first and second fields of each frame, the first field of each frame with the second field of each frame. However, Adobe After Effects Version 4.1 teaches the claim limitation of "Separating each full frame of the plurality of full frames into first and second fields, wherein the first fields contain the even lines of the plurality of full frames and the second fields contain the odd lines of the plurality of full frames". See Fig. 16.33 in the Field Render pull-down menu wherein Field Render specifies whether to field render the output movie). See also Figure 2.71 for Choosing the correct field from Fields and Pulldown menu for choosing/rendering first upper/odd fields or lower/even fields and thereby separating each full

frame into first and second fields for the interlaced video. The Upper Field First-Correctly separates the fields of upper/odd-field source files in which the odd fields are displayed first. The lower/even-field First-correctly separates the fields of lower-field source files wherein the even fields are displayed first.

Claim 6:

The claim 6 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of bicubic interpolation.

However, Adobe-Dynamics-Media-Group further discloses the claim limitation of resizing each full frame of the plurality of full frames to produce a plurality of full frames that are antialiased by performing bicubic interpolation (***e.g., Applicant admits on page 4 of applicant's specification that Adobe's AfterEffects teaches bicubic interpolation of pixels for each full frame and Adobe-Dynamics-Media-Group teaches a set of the software such as Adobe AfterEffects, Photoshop and Premier***).

Claim 7:

The claim 7 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of blending each consecutive antialiased frame being performed by averaging corresponding pixel values of each frame.

However, Adobe After Effects Version 4.1 teaches, "Resizing each full frame of the plurality of full frames to produce a plurality of antialiased frames". Adobe After Effect Version 4.1 teaches in Chapter 16, resizing each full frame of the plurality of full frames to produce a

plurality of antialiased frames, for example, in Output Module Settings window, one can stretch/resize each full frame that determines the output file format for the movie/composition format in the motion files, TIFF or PICT sequences of frames and one can import into project when done so that the rendered composition or the sequence of frames put back into the project. Adobe After Effect Version 4.1 teaches in Fig. 7.22 of Chapter 7 to scale/resize the frame content of each full frame. Adobe After Effect Version 4.1 teaches in Chapter: Composition Settings Window to resizing each full frame by changing the spatial resolution of each full frame. Adobe After Effect Version 4.1 teaches in Chapter 12 Frame Blending which resizes the plurality of full frames temporally, e.g., from 15 fps to 30 fps by interpolating frames and thus resizing the plurality of full frames. Adobe After Effect Version 4.1 teaches in Chapter 2 using the alpha channel to create anti-aliased frames (See Fig. 2.44) and in Chapter 12 using alpha manipulation mode to create anti-aliased frames (See Fig. 12.40). Adobe After Effects Version 4.1 teaches in Chapter 12 "blur comp" window of Fig. 12.5 to produce an animated layer that appears sharp and distinct as it moves through the frame of the composition. To simulate the effect over time by setting key frames, the Motion Blur switch is activated for an animated layer. Adobe After Effects Version 4.1 teaches "Keyframe Interpolation" for providing spatial and temporal interpolation. One can view and control temporal interpolation in a speed, value or velocity path to produce smooth frames.

Claim 15:

The claim 15 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of the rendering step being implemented using commercial software.

However, Adobe After Effect Version 4.1 is an commercial software.

Claim 19:

The claim 19 is subject to the same rationale of rejection set forth in the claim 1.

Claim 21:

The claim 21 encompasses the same scope of invention as that of the claim 7. The claim 19 is subject to the same rationale of rejection set forth in the claim 7.

Claim 22:

The claim 22 encompasses the same scope of invention as that of the claim 4. The claim 19 is subject to the same rationale of rejection set forth in the claim 4.

Claim 23:

The claim 23 encompasses the same scope of invention as that of the claim 5. The claim 19 is subject to the same rationale of rejection set forth in the claim 5.

Claim 24:

The claim 24 encompasses the same scope of invention as that of the claim 5. The claim 19 is subject to the same rationale of rejection set forth in the claim 5.

Claim 25:

The claim 25 encompasses the same scope of invention as that of the claim 6. The claim 19 is subject to the same rationale of rejection set forth in the claim 6.

Claim 26:

The claim 26 encompasses the same scope of invention as that of the claim 7. The claim 19 is subject to the same rationale of rejection set forth in the claim 7.

Claim 19:

The claim 19 is subject to the same rationale of rejection set forth in the claim 1.

Claim 2:

Adobe After Effects Version 4.1 published in 2000 has taught the claim invention.

Adobe After Effects Version 4.1 teaches "rendering a plurality of full frames at a whole number of multiple of a digital video resolution value defining the number of pixels contained in each full frame of the plurality of full frames and at a whole number multiple of a temporal resolution value defining the rate of display of the plurality of full frames on a computer screen". This function is accomplished with Adobe After Effects Version 4.1 within Chapter 4: Composition Settings window, e.g., Fig. 4.8, by changing the Frame Rate, Frame Size having width and height of the image frames wherein the frame resolution may be set from 160*120 to 320 **240 or 640***480 which is a whole number of multiple of a digital video resolution value defining the number of pixels. The frame rate may be set to 30 fps or 60 fps at a whole number multiple of a temporal resolution value defining the rate of display of the plurality of full frames. Additionally, Adobe After Effect Version 4.1 teaches that compositions describe how layers are arranged in space and time, you must define a composition's spatial attributes, such as its frame size and pixel aspect ratio, as well as temporal aspects such as its duration and frame rate. Composition settings allow you to specify these characteristics, in addition to the resolution or

quality of the display of the Composition window. You may change any of the composition settings at any time. See also Chapter 16, Choose Render Setting, wherein the frame rate and frame resolution as well as Frame Blending, Motion Blue, are set through the Render Settings window.

Adobe After Effects Version 4.1 teaches, "Resizing each full frame of the plurality of full frames to antialias each full frame of the plurality of frames". Adobe After Effect Version 4.1 teaches in Chapter 16, resizing each full frame of the plurality of full frames to produce a plurality of antialiased frames, for example, in Output Module Settings window, one can stretch/resize each full frame that determines the output file format for the movie/composition format in the motion files, TIFF or PICT sequences of frames and one can import into project when done so that the rendered composition or the sequence of frames put back into the project. Adobe After Effect Version 4.1 teaches in Fig. 7.22 of Chapter 7 to scale/resize the frame content of each full frame. Adobe After Effect Version 4.1 teaches in Chapter: Composition Settings Window to resizing each full frame by changing the spatial resolution of each full frame. Adobe After Effect Version 4.1 teaches in Chapter 12 Frame Blending which resizes the plurality of full frames temporally, e.g., from 15 fps to 30 fps by interpolating frames and thus resizing the plurality of full frames. Adobe After Effect Version 4.1 teaches in Chapter 2 using the alpha channel to create anti-aliased frames (See Fig. 2.44) and in Chapter 12 using alpha manipulation mode to create anti-aliased frames (See Fig. 12.40). Adobe After Effects Version 4.1 teaches in Chapter 12 "blur comp" window of Fig. 12.5 to produce an animated layer that appears sharp and distinct as it moves through the frame of the composition. To simulate the effect over time by setting key frames, the Motion Blur switch is activated for an animated layer.

Adobe After Effects Version 4.1 teaches "Keyframe Interpolation" for providing spatial and temporal interpolation. One can view and control temporal interpolation in a speed, value or velocity path to produce smooth frames.

Adobe After Effects Version 4.1 teaches "frame blending" by activating the Frame Blending switch. When Frame Blending is on, After Effects interpolates between original frames, blending them, rather than simply repeating them and thus producing smooth frames without the jerky appearance.

Adobe After Effects Version 4.1 teaches "blending each consecutive full frame of the plurality of full frames". Adobe After Effects Version 4.1 teaches "frame blending" by activating the Frame Blending switch (See for example, Fig. 16.32 in the Frame Blending pull-down menu, choose Frame Blending switch which specifies whether frame blending will be applied). When Frame Blending is on, After Effects interpolates between original frames, blending them, rather than simply repeating them and thus producing smooth frames without the jerky appearance. Blending under various modes are also taught in Chapter 2 such as Stencil and Sihouette Modes and Alpha Manipulation Modes to produce anti-aliased frames (See Figs. 12.40-12.43).

Adobe After Effects Version 4.1 teaches the claim limitation of "Blending the colors and images depicted in pixels that are within a Gaussian blur radius value of a center pixel, wherein the number of pixels blended is proportional to a Gaussian blur radius". See "Using the Compound Blur Effect". In particular, See Chapter 11, Fig. 11.25, Choose Effect>Blue&Sharpen>Gaussian Blur which allows a specification of Gaussian blue radius. See also Chapter 12, Motion Blur, in Fig. 12.5, it shows an animated layer appears sharp (anti-aliased) and distinct as it moves through the frame of the composition. To simulate this effect,

activate the Motion Blur switch for an animated layer in a sequence of frames (See Fig. 12.8 wherein the Motion Blur can be applied to a plurality of frames).

Adobe After Effects Version 4.1 teaches the claim limitation of "Separating each full frame of the plurality of full frames into first and second fields, wherein the first fields contain the even lines of the plurality of full frames and the second fields contain the odd lines of the plurality of full frames". See Fig. 16.33 in the Field Render pull-down menu wherein Field Render specifies whether to field render the output movie). See also Figure 2.71 for Choosing the correct field from Fields and Pulldown menu for choosing/rendering first upper/odd fields or lower/even fields and thereby separating each full frame into first and second fields for the interlaced video. The Upper Field First-Correctly separates the fields of upper/odd-field source files in which the odd fields are displayed first. The lower/even-field First-correctly separates the fields of lower-field source files wherein the even fields are displayed first.

Adobe After Effects Version 4.1 teaches the claim limitation of Alternately displaying the first and second fields. See Frame Blending pull-down menu in Chapter 16, Fig. 16.27-16.34 wherein full resolution frames are rendered by choosing the appropriate settings for frame resolution, frame blending rate, Motion Blur, and Field Render setting for rendering the odd/fields and/or even fields, etc.

Claim 3:

The claim 3 encompasses the same scope of invention as that of the claim 2. The claim 2 is subject to the same rationale of rejection set forth in the claim 2.

Claim 8:

(a) The claim 8 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of gaussian blurring of a non-zero pixel radius being performed that blends the colors and images depicted in pixels that are within a gaussian blur radius value of a center pixel. Adobe After Effects Version 4.1 teaches the claim limitation of "Blending the colors and images depicted in pixels that are within a Gaussian blur radius value of a center pixel, wherein the number of pixels blended is proportional to a Gaussian blur radius". See "Using the Compound Blur Effect". In particular, See Chapter 11, Fig. 11.25, Choose Effect>Blue&Sharpen>Gaussian Blur which allows a specification of Gaussian blue radius. See also Chapter 12, Motion Blur, in Fig. 12.5, it shows an animated layer appears sharp (anti-aliased) and distinct as it moves through the frame of the composition. To simulate this effect, activate the Motion Blur switch for an animated layer in a sequence of frames (See Fig. 12.8 wherein the Motion Blur can be applied to a plurality of frames).

Claim 9:

The claim 9 encompasses the same scope of invention as that of the claim 2 except additional claim limitation that is identical to the claim 6. The claim 9 is subject to the same rationale of rejection set forth in the claim 6.

Claim 10:

The claim 10 encompasses the same scope of invention as that of the claim 2 except additional claim limitation that is identical to the claim 7. The claim 10 is subject to the same rationale of rejection set forth in the claim 7.

Claims 11-14:

Each of the claims 11-14 encompasses the same scope of invention as that of the claim 2. The claims 11-14 are subject to the same rationale of rejection set forth in the claim 2.

Claim 27:

(a) The claim 27 encompasses the same scope of invention as that of the claim 26 except additional claim limitation of gaussian blurring being performed that blends the colors and images depicted in pixels that are in proximity to one another in each frame. Adobe After Effects Version 4.1 teaches the claim limitation of "Blending the colors and images depicted in pixels that are within a Gaussian blur radius value of a center pixel, wherein the number of pixels blended is proportional to a Gaussian blur radius". See "Using the Compound Blur Effect". In particular, See Chapter 11, Fig. 11.25, Choose Effect>Blue&Sharpen>Gaussian Blur which allows a specification of Gaussian blue radius. See also Chapter 12, Motion Blur, in Fig. 12.5, it shows an animated layer appears sharp (anti-aliased) and distinct as it moves through the frame of the composition. To simulate this effect, activate the Motion Blur switch for an animated layer in a sequence of frames (See Fig. 12.8 wherein the Motion Blur can be applied to a plurality of frames).

Claims 28-29:

Each of the claims 28-29 encompasses the same scope of invention as that of the claim 2. The claims 28-29 are subject to the same rationale of rejection set forth in the claim 2.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-15, and 19, 21-29 are rejected under 35 U.S.C. 102(b) as being anticipated by **Admission**.

Re Claims 1-15, 19 and 21-29:

See MPEP 2129. Where the specification identifies work done by another as "prior art," the subject matter so identified is treated as admitted prior art. In re Nomiya, 509 F.2d 566, 571, 184 USPQ 607, 611 (CCPA 1975) (holding applicant's labeling of two figures in the application drawings as "prior art" to be an admission that what was pictured was prior art relative to applicant's improvement).

At lines 28-29 ON PAGE 5 of Applicant's specification, it is stated, "the method is advantageous because it is straightforward to implement with commercial software currently available and produces high quality video."

Applicant has used commercial software to come up with the claim invention, at least the specification in Pages 1-5 preceding the above-quoted passage. Because commercial software constitutes the prior art, the commercial software has taught the applicant's claim invention as Applicant admitted of implementing it to arrive at the method (the claimed invention) and thus to obtain the high quality video.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 1, 4-7, 15, 19, and 21-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Demos U.S. Patent No. 5,852,565 (hereinafter Demos-565) in view of Adobe Dynamic Media Group, "A Digital Video Primer", pp. 1-31; June 2000 as applied to claim 1 above, and further in view of Demos U.S. Patent No. 6,442,203 (hereinafter Demos-203) and **Adobe After Effects Version 4.1 for Macintosh and Windows (www.adobe.com)**.

The Adobe After Effects are well known to one of the ordinary skill in the computer graphics art. Due to the related copyright law and regulations, the software and/or the book chapters for the Adobe After Effects Version 4.1 as related to the claim invention are not furnished. However, applicants are requested to provide information disclosures on the Adobe After Effects which applicant had employed to come up with the method (claim invention) as the applicant's specification has described. Applicant had used the Adobe After Effects in implementing the method set forth in the applicant's specification.

Claim 1:

ON PAGE 5 of Applicant's specification, it is stated, "the method is advantageous because it is straightforward to implement with commercial software currently available and produces high quality video."

Applicant has used commercial software to come up with the claim invention, at least the specification in Pages 1-5 preceding the above-quoted passage. Because commercial software constitutes the prior art, the commercial software has taught the applicant's claim invention as Applicant admitted of implementing it to arrive at the method (the claimed invention) and thus to obtain the high quality video.

Moreover, this Examiner has found that Adobe After Effects Version 4.1 published in 2000 has taught the claim invention.

Adobe After Effects Version 4.1 teaches "rendering a plurality of full frames at a whole number of multiple of a digital video resolution value defining the number of pixels contained in each full frame of the plurality of full frames and at a whole number multiple of a temporal resolution value defining the rate of display of the plurality of full frames on a computer screen". This function is accomplished with Adobe After Effects Version 4.1 within Chapter 4: Composition Settings window, e.g., Fig. 4.8, by changing the Frame Rate, Frame Size having width and height of the image frames wherein the frame resolution may be set from 160*120 to 320 **240 or 640***480 which is a whole number of multiple of a digital video resolution value defining the number of pixels. The frame rate may be set to 30 fps or 60 fps at a whole number multiple of a temporal resolution value defining the rate of display of the plurality of full frames. Additionally, Adobe After Effect Version 4.1 teaches that compositions describe how layers are arranged in space and time, you must define a composition's spatial attributes, such as its frame size and pixel aspect ratio, as well as temporal aspects such as its duration and frame rate. Composition settings allow you to specify these characteristics, in addition to the resolution or

quality of the display of the Composition window. You may change any of the composition settings at any time. See also Chapter 16, Choose Render Setting, wherein the frame rate and frame resolution as well as Frame Blending, Motion Blue, are set through the Render Settings window.

Adobe After Effects Version 4.1 teaches, "Resizing each full frame of the plurality of full frames to produce a plurality of antialiased frames". Adobe After Effect Version 4.1 teaches in Chapter 16, resizing each full frame of the plurality of full frames to produce a plurality of antialiased frames, for example, in Output Module Settings window, one can stretch/resize each full frame that determines the output file format for the movie/composition format in the motion files, TIFF or PICT sequences of frames and one can import into project when done so that the rendered composition or the sequence of frames put back into the project. Adobe After Effect Version 4.1 teaches in Fig. 7.22 of Chapter 7 to scale/resize the frame content of each full frame. Adobe After Effect Version 4.1 teaches in Chapter: Composition Settings Window to resizing each full frame by changing the spatial resolution of each full frame. Adobe After Effect Version 4.1 teaches in Chapter 12 Frame Blending which resizes the plurality of full frames temporally, e.g., from 15 fps to 30 fps by interpolating frames and thus resizing the plurality of full frames. Adobe After Effect Version 4.1 teaches in Chapter 2 using the alpha channel to create anti-aliased frames (See Fig. 2.44) and in Chapter 12 using alpha manipulation mode to create anti-aliased frames (See Fig. 12.40). Adobe After Effects Version 4.1 teaches in Chapter 12 "blur comp" window of Fig. 12.5 to produce an animated layer that appears sharp and distinct as it moves through the frame of the composition. To simulate the effect over time by setting key frames, the Motion Blur switch is activated for an animated layer. Adobe After Effects Version

4.1 teaches "Keyframe Interpolation" for providing spatial and temporal interpolation. One can view and control temporal interpolation in a speed, value or velocity path to produce smooth frames.

Adobe After Effects Version 4.1 teaches "frame blending" by activating the Frame Blending switch. When Frame Blending is on, After Effects interpolates between original frames, blending them, rather than simply repeating them and thus producing smooth frames without the jerky appearance.

Adobe After Effects Version 4.1 teaches "blending each consecutive antialiased frame". Adobe After Effects Version 4.1 teaches "frame blending" by activating the Frame Blending switch (See for example, Fig. 16.32 in the Frame Blending pull-down menu, choose Frame Blending switch which specifies whether frame blending will be applied). When Frame Blending is on, After Effects interpolates between original frames, blending them, rather than simply repeating them and thus producing smooth frames without the jerky appearance. Blending under various modes are also taught in Chapter 2 such as Stencil and Sihouette Modes and Alpha Manipulation Modes to produce anti-aliased frames (See Figs. 12.40-12.43).

Demos-565 teaches rendering of full frames at a whole number of multiple of a digital video resolution value defining the number of pixels contained in each frame and at a whole number multiple of a temporal resolution value defining the rate of display of full frames on a computer screen (***Fig. 10 of the cited reference wherein a video of resolution 1k by 512 is converted to 2k by 1k. See Fig. 10 of the cited reference wherein the frame rate 24 fps or 36 fps is converted to 72 fps/Hz; see column 15, lines 18-50 for detailed description***).

Although Demos-565 is silent to the claim limitation of resizing each full frame to produce a plurality of frames that are antialiased, *Adobe-Dynamics-Media-Group in Page 7 also discloses* ***spatial compression*** *such as reducing the size of each video frame in which each input video frame is resized, in page 7 and 11, while keeping image quality high and avoiding compression artifacts. Adobe-Dynamics-Media-Group further discloses scaling each video frame to create* ***smooth key-framed animations of flying video*** *with controls for such parameters as rotation,* ***scale and distortion***. ***In regard to a spatial resizing, Applicant admits on page 4 of applicant's specification that Adobe's AfterEffects teaches bicubic interpolation of pixels for each full frame which is related to spatial resizing of a video frame and Adobe-Dynamics-Media-Group teaches a set of the software such as Adobe AfterEffects, Photoshop and Premier*** *and thereby teaches spatial resizing of a video frame to reduce the resolution of a video frame. Additionally, Adobe-Dynamics-Media-Group further discloses in Page 18 cross-platform compatibility in which digital clips can be imported or exported in many* ***different video formats*** *with different resolutions and rendering the text and graphics at any scale.*

Applicant admits on page 4 of applicant's specification that Adobe's After Effects teaches bicubic interpolation of pixels for each full frame and Adobe-Dynamics-Media-Group teaches a set of the software such as Adobe After Effects, Photoshop and Premier.

Although Demos-565 is silent to the claim limitation of blending each consecutive frame, Adobe-Dynamics-Media-Group teaches in page 12 blending each consecutive frame of a video stream in which the pixels corresponding to the frames can be spatially or temporally blended by temporal compression/combination of the inter temporal image frames and spatial compression/combination of the pixels associated with each consecutive image frame and

blending with text and graphics for each consecutive image frame. Adobe-Dynamics-Media-Group discloses in page 12 each of I, B and P frames are obtained from a pair of consecutive frames by averaging the corresponding pixel values of each frame.

It would have been obvious to one of the ordinary skill in the art to have incorporated Adobe's resizing feature in a software program into Demos-565's computer program because Demos-565 in Fig. 8 a filter to reduce the resolution of the 2k by 1k original image to 1k by 512 base layer image. Demos-565 also teaches **temporal scaling and resolution scaling** techniques in column 17, lines 35-67 and column 18, lines 1-12 and column 18, lines 38-57) and therefore suggests an obvious modification.

One of the ordinary skill in the art would have been motivated to perform temporal scaling and resolution scaling according to Demos-565's invention (See Demos-565 column 17, lines 35-67 and column 18, lines 1-12 and column 18, lines 38-57).

Claim 4:

The claim 4 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of separating each frame into a first and a second field, wherein the first field contains the even lines of a frame and the second field contains the odd lines of a frame. However, Adobe-Dynamics-Media-Group further discloses the claim limitation of separating each frame into a first and second field, the first field contains the even lines of a frame and the second field contains the odd lines of a frame (*e.g., Adobe-Dynamics-Media-Group further discloses software for calculating the images for the two set of fields, for each*

frame of video, in order to achieve the smoothest motion and thereby separating the even and odd lines of the picture image by calculating the images for the two set of fields separately for the first 1/60th of a second and the next 1/60th of a second in the TV screen. Therefore, a television that is displaying 30 frames per second is really displaying 60 fields per second).

Claim 5:

The claim 5 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of alternately displaying the first and second fields of each frame, the first field of each frame with the second field of each frame. However, Adobe-Dynamics-Media-Group further discloses the claim limitation of alternately displaying the first and second fields of each frame, the first field of each frame with the second field of each frame (*e.g., Adobe-Dynamics-Media-Group page 4 calculating the odd and even fields of a picture image and alternately display the two set of fields for the first 1/60th of a second and the next 1/60th of a second in the TV screen*).

Claim 6:

The claim 6 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of bicubic interpolation.

However, Adobe-Dynamics-Media-Group further discloses the claim limitation of resizing each full frame of the plurality of full frames to produce a plurality of full frames that are antialiased by performing bicubic interpolation (***e.g., Applicant admits on page 4 of applicant's specification that Adobe's AfterEffects teaches bicubic interpolation of pixels for***

each full frame and Adobe-Dynamics-Media-Group teaches a set of the software such as Adobe AfterEffects, Photoshop and Premier).

Claim 7:

The claim 7 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of blending each consecutive antialiased frame being performed by averaging corresponding pixel values of each frame.

However, Adobe-Dynamics-Media-Group further discloses the claim limitation of blending each consecutive antialiased frame being performed by averaging corresponding pixel values of each frame (*e.g., Adobe-Dynamics-Media-Group further discloses in page 12 each of the I, B and P frames are obtained from a pair of consecutive frames by averaging the corresponding pixel values of each frame*).

Claim 15:

The claim 15 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of the rendering step being implemented using commercial software.

However, Adobe-Dynamics-Media-Group further discloses the commercial software implementing the rendering step (***e.g., Adobe-Dynamics-Media-Group in page 16 discloses the Photoshop software that can be used to perform the rendering step. Adobe-Dynamics-Media-Group in page 4 discloses the separating of two set of fields of a picture image using AfterEffects software. Adobe-Dynamics-Media-Group in page 3 that film displayed at the rate of 24 frames per second***).

Claim 19:

The claim 19 is subject to the same rationale of rejection set forth in the claim 1.

Claim 21:

The claim 21 encompasses the same scope of invention as that of the claim 7. The claim 19 is subject to the same rationale of rejection set forth in the claim 7.

Claim 22:

The claim 22 encompasses the same scope of invention as that of the claim 4. The claim 19 is subject to the same rationale of rejection set forth in the claim 4.

Claim 23:

The claim 23 encompasses the same scope of invention as that of the claim 5. The claim 19 is subject to the same rationale of rejection set forth in the claim 5.

Claim 24:

The claim 24 encompasses the same scope of invention as that of the claim 5. The claim 19 is subject to the same rationale of rejection set forth in the claim 5.

Claim 25:

The claim 25 encompasses the same scope of invention as that of the claim 6. The claim 19 is subject to the same rationale of rejection set forth in the claim 6.

Claim 26:

The claim 26 encompasses the same scope of invention as that of the claim 7. The claim 19 is subject to the same rationale of rejection set forth in the claim 7.

Claims 2, 3, 8-14, and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Demos U.S. Patent No. 5,852,565 (hereinafter Demos-565) in view of Adobe Dynamic Media Group, "A Digital Video Primer", pp. 1-31; June 2000 as applied to claim 1 above, and further in view of (hereinafter Demos-203) and **Adobe AfterEffects Version 4.1 for Macintosh and Windows (www.adobe.com)**.

Claim 2:

ON PAGE 5 of Applicant's specification, it is stated, "the method is advantageous because it is straightforward to implement with commercial software currently available and produces high quality video."

Applicant has used commercial software to come up with the claim invention, at least the specification in Pages 1-5 preceding the above-quoted passage. Because commercial software constitutes the prior art, the commercial software has taught the applicant's claim invention as Applicant admitted of implementing it to arrive at the method (the claimed invention) and thus to obtain the high quality video.

Moreover, this Examiner has found that Adobe After Effects Version 4.1 published in 2000 has taught the claim invention.

Adobe After Effects Version 4.1 teaches "rendering a plurality of full frames at a whole number of multiple of a digital video resolution value defining the number of pixels contained in each full frame of the plurality of full frames and at a whole number multiple of a temporal

resolution value defining the rate of display of the plurality of full frames on a computer screen". This function is accomplished with Adobe After Effects Version 4.1 within Chapter 4: Composition Settings window, e.g., Fig. 4.8, by changing the Frame Rate, Frame Size having width and height of the image frames wherein the frame resolution may be set from 160*120 to 320 **240 or 640***480 which is a whole number of multiple of a digital video resolution value defining the number of pixels. The frame rate may be set to 30 fps or 60 fps at a whole number multiple of a temporal resolution value defining the rate of display of the plurality of full frames. Additionally, Adobe After Effect Version 4.1 teaches that compositions describe how layers are arranged in space and time, you must define a composition's spatial attributes, such as its frame size and pixel aspect ratio, as well as temporal aspects such as its duration and frame rate. Composition settings allow you to specify these characteristics, in addition to the resolution or quality of the display of the Composition window. You may change any of the composition settings at any time. See also Chapter 16, Choose Render Setting, wherein the frame rate and frame resolution as well as Frame Blending, Motion Blue, are set through the Render Settings window.

Adobe After Effects Version 4.1 teaches, "Resizing each full frame of the plurality of full frames to produce a plurality of antialiased frames". Adobe After Effect Version 4.1 teaches in Chapter 16, resizing each full frame of the plurality of full frames to produce a plurality of antialiased frames, for example, in Output Module Settings window, one can stretch/resize each full frame that determines the output file format for the movie/composition format in the motion files, TIFF or PICT sequences of frames and one can import into project when done so that the rendered composition or the sequence of frames put back into the project. Adobe After Effect

Version 4.1 teaches in Fig. 7.22 of Chapter 7 to scale/resize the frame content of each full frame. Adobe After Effect Version 4.1 teaches in Chapter: Composition Settings Window to resizing each full frame by changing the spatial resolution of each full frame. Adobe After Effect Version 4.1 teaches in Chapter 12 Frame Blending which resizes the plurality of full frames temporally, e.g., from 15 fps to 30 fps by interpolating frames and thus resizing the plurality of full frames. Adobe After Effect Version 4.1 teaches in Chapter 2 using the alpha channel to create anti-aliased frames (See Fig. 2.44) and in Chapter 12 using alpha manipulation mode to create anti-aliased frames (See Fig. 12.40). Adobe After Effects Version 4.1 teaches in Chapter 12 "blur comp" window of Fig. 12.5 to produce an animated layer that appears sharp and distinct as it moves through the frame of the composition. To simulate the effect over time by setting key frames, the Motion Blur switch is activated for an animated layer. Adobe After Effects Version 4.1 teaches "Keyframe Interpolation" for providing spatial and temporal interpolation. One can view and control temporal interpolation in a speed, value or velocity path to produce smooth frames.

Adobe After Effects Version 4.1 teaches "frame blending" by activating the Frame Blending switch. When Frame Blending is on, After Effects interpolates between original frames, blending them, rather than simply repeating them and thus producing smooth frames without the jerky appearance.

Adobe After Effects Version 4.1 teaches "blending each consecutive antialiased frame". Adobe After Effects Version 4.1 teaches "frame blending" by activating the Frame Blending switch (See for example, Fig. 16.32 in the Frame Blending pull-down menu, choose Frame Blending switch which specifies whether frame blending will be applied). When Frame Blending

is on, After Effects interpolates between original frames, blending them, rather than simply repeating them and thus producing smooth frames without the jerky appearance. Blending under various modes are also taught in Chapter 2 such as Stencil and Sihouette Modes and Alpha Manipulation Modes to produce anti-aliased frames (See Figs. 12.40-12.43).

Adobe After Effects Version 4.1 teaches the claim limitation of "Blending the colors and images depicted in pixels that are within a Gaussian blur radius value of a center pixel, wherein the number of pixels blended is proportional to a Gaussian blur radius". See "Using the Compound Blur Effect". In particular, See Chapter 11, Fig. 11.25, Choose Effect>Blue&Sharpen>Gaussian Blur which allows a specification of Gaussian blue radius. See also Chapter 12, Motion Blur, in Fig. 12.5, it shows an animated layer appears sharp (anti-aliased) and distinct as it moves through the frame of the composition. To simulate this effect, activate the Motion Blur switch for an animated layer in a sequence of frames (See Fig. 12.8 wherein the Motion Blur can be applied to a plurality of frames).

Adobe After Effects Version 4.1 teaches the claim limitation of "Separating each full frame of the plurality of full frames into first and second fields, wherein the first fields contain the even lines of the plurality of full frames and the second fields contain the odd lines of the plurality of full frames". See Fig. 16.33 in the Field Render pull-down menu wherein Field Render specifies whether to field render the output movie). See also Figure 2.71 for Choosing the correct field from Fields and Pulldown menu for choosing/rendering first upper/odd fields or lower/even fields and thereby separating each full frame into first and second fields for the interlaced video. The Upper Field First-Correctly separates the fields of upper/odd-field source

files in which the odd fields are displayed first. The lower/even-field First-correctly separates the fields of lower-field source files wherein the even fields are displayed first.

Adobe After Effects Version 4.1 teaches the claim limitation of Alternately displaying the first and second fields. See Frame Blending pull-down menu in Chapter 16, Fig. 16.27-16.34 wherein full resolution frames are rendered by choosing the appropriate settings for frame resolution, frame blending rate, Motion Blur, and Field Render setting for rendering the odd/fields and/or even fields, etc.

Demos-565 and Adobe-Dynamics-Media-Group teach rendering a plurality of full frames at a whole number of multiple of a digital video resolution value defining the number of pixels contained in each frame of the plurality of full frames and at a whole number multiple of a temporal resolution value defining the rate of display of the plurality of full frames on a computer screen (*e.g., Adobe-Dynamics-Media-Group teaches in page 4 producing videos in different resolutions and at the frame rates. The original video frames can be rendered at different resolutions and different temporal resolution rates. For example, a television that is displaying 30 frames per second for a stream of video frames is really displaying 60 fields per second and therefore the stream is rendered at 60 frames per second while the same stream of video frames being displayed on the computer is displayed at 30 frames per second due to the separation of the odd/even fields and alternately displaying the odd frame and even frame on the computer screen . Adobe-Dynamics-Media-Group further discloses scaling each video frame to create smooth key-framed animations of flying video which includes controls for such parameters as rotation, scale and distortion. Adobe-Dynamics-Media-Group further discloses in*

Page 20 of a Timeline control for adjusting the frame rate which control how fast or slow a particular clip will play, i.e., changing the frame rate of a video clip. Therefore, Adobe-Dynamics-Media-Group teaches full frames are rendered at a multiple of the original video resolution and at a multiple of a temporal resolution rate).

Resizing each full frame of the plurality of full frames to antialias each full frame of the plurality of full frames (*e.g., Adobe-Dynamics-Media-Group discloses in Page 4 producing videos in different resolutions and at different frame rate. Adobe-Dynamics-Media-Group in Page 7 discloses temporal* ***compression*** *such as the inter-frame compression in which the whole video stream may be resized in terms of the data size, for example, the video is compressed to one-fifth of its original size (resizing). Adobe-Dynamics-Media-Group in Page 7 also discloses spatial compression such as reducing the size of each video frame in which each input video frame is resized, in page 7 and 11, while keeping image quality high and avoiding compression artifacts; Adobe-Dynamics-Media-Group further discloses scaling each video frame to create smooth key-framed animations of flying video which includes controls for such parameters as rotation, scale and distortion. Adobe-Dynamics-Media-Group further discloses in Page 20 of a Timeline control for adjusting the frame rate which control how fast or slow a particular clip will play, i.e., changing the frame rate of a video clip. Finally, in regard to a spatially resizing, Applicant admits on page 4 of applicant's specification that Adobe's AfterEffects teaches bicubic interpolation of pixels for each full frame which is related to spatially resizing of a video frame and Adobe-Dynamics-Media-Group teaches a set of the software such as Adobe AfterEffects, Photoshop and Premier and thereby teaches spatially resizing of a video frame to reduce the resolution of a video frame. Additionally, Adobe-Dynamics-Media-Group further discloses in*

Page 18 cross-platform compatibility in which digital clips can be imported or exported in many different video formats with different resolutions and rendering the text and graphics at any scale. e.g., Adobe-Dynamics-Media-Group teaches compression which reduces the size of each video frame, in page 7 and 11, while keeping image quality high and avoiding compression artifacts. Moreover, Adobe-Dynamics-Media-Group further discloses scaling each video frame to create smooth key-framed animations of flying video with controls for such parameters as rotation, scale and distortion. Adobe-Dynamics-Media-Group further discloses in Page 20 of a Timeline control for adjusting the frame rate which control how fast or slow a particular clip will play, i.e., changing the frame rate of a video clip);

Applicant admits on page 4 of applicant's specification that Adobe's AfterEffects teaches bicubic interpolation of pixels for each full frame and Adobe-Dynamics-Media-Group teaches a set of the software such as Adobe AfterEffects, Photoshop and Premier.

Blending each consecutive full frame of the plurality of full frames (*e.g., Adobe-Dynamics-Media-Group teaches in page 12 that pixels corresponding to the frames can be spatially or temporally blended. For example, temporal compression of a video streams requires blending between the image frames.*).

Separating each full frame of the plurality of full frames into first and second fields, wherein the first fields contain the even lines of the plurality of full frames and the second fields contain the odd lines of the plurality of full frames (*e.g., Adobe-Dynamics-Media-Group further discloses software for calculating the images for the two set of fields, for each frame of video, in order to achieve the smoothest motion and thereby separating the even and odd lines of the picture image by calculating the images for the two set of fields separately for the first 1/60th of*

the second and the next 1/60th of a second in the TV screen. Therefore, a television that is displaying 30 frames per second is really displaying 60 fields per second); and

Alternately displaying the first and second fields (*e.g., Adobe-Dynamics-Media-Group page 4 calculating the odd and even fields of a picture image and alternately display the two set of fields for the first 1/60th of a second and the next 1/60th of a second in the TV screen*).

However, Demos-565 and Adobe-Dynamics-Media-Group are silent to Gaussian blurring and thereby is silent to the claim limitation of "Blending the colors and images depicted in pixels that are within a Gaussian blur radius value of a center pixel, wherein the number of pixels blended is proportional to a Gaussian blur radius".

(c) Demos-203 teaches Gaussian blur radius and the claim limitation of "Blending the colors and images depicted in pixels that are within a Gaussian blur radius value of a center pixel, wherein the number of pixels blended is proportional to a Gaussian blur radius" (*e.g., Demos column 22, lines 56-67; column 23, lines 1-25 a Gaussian blur filter with certain radius along the motion vector crossing the set of the frames wherein the a series of Gaussian filters are placed at single pixel steps along the motion vector line and the motion vector line extends plus and minus half its length centered about the new pixel position center. Therefore, Demos teaches the gaussian blurring radius within the Gaussian blur filter*).

(d) It would have been obvious to one of ordinary skill in the art to have incorporated the Gaussina blur radius of Demos-203 into Demos-565 and Adobe-Dynamics-Media-Group's software such as AfterEffects because Adobe-Dynamics-Media-Group discloses effects filters and motion blur through Motion Math (Adobe-Dynamics-Media-Group page 21 and 25) and Adobe AfterEffects has the bicubic interpolation filter and motion blur math for spatially or

temporally blending of pixels according to the AfterEffects' filters (Adobe-Dynamics-Media-Group page 21 and 25). Therefore Adobe-Dynamics-Media-Group suggests the claim limitation. Moreover, Demos also teaches spatially and temporally compositing of video frames (Demos column 19-22).

(e) One of the ordinary skill in the art would have been motivated to do this because Gaussian blur filter can be incorporated for spatially and temporally compositing of video frames (Demos-203 column 19-23) in Adobe's AfterEffects Software (Adobe-Dynamics-Media-Group page 21 and 25).

Claim 3:

The claim 3 encompasses the same scope of invention as that of the claim 2. The claim 2 is subject to the same rationale of rejection set forth in the claim 2.

Claim 8:

(a) The claim 8 encompasses the same scope of invention as that of the claim 1 except additional claim limitation of gaussian blurring of a non-zero pixel radius being performed that blends the colors and images depicted in pixels that are within a gaussian blur radius value of a center pixel.

(b) The Demos-565 and Adobe-Dynamics-Media-Group disclose all claim limitations set forth in the claim 1. However, Demos-565 and Adobe-Dynamics-Media-Group are silent to Gaussian blur radius and thereby is silent to the claim limitation of gaussian blurring of a non-zero pixel radius being performed that blends the colors and images depicted in pixels that are within a gaussian blur radius value of a center pixel.

(c) Demos-203 teaches Gaussian blur radius and the claim limitation of gaussian blurring of a non-zero pixel radius being performed that blends the colors and images depicted in pixels that are within a gaussian blur radius value of a center pixel (*e.g., Demos-203 column 22, lines 56-67; column 23, lines 1-25 a Gaussian blur filter with certain radius along the motion vector crossing the set of the frames wherein the a series of Gaussian filters are placed at single pixel steps along the motion vector line and the motion vector line extends plus and minus half its length centered about the new pixel position center. Therefore, Demos-203 teaches the gaussian blurring radius within the Gaussian blur filter*).

(d) It would have been obvious to one of ordinary skill in the art to have incorporated the Gaussina blur radius of Demos-203 into Demos-565 and Adobe-Dynamics-Media-Group's software such as AfterEffects because Adobe-Dynamics-Media-Group discloses effects filters and motion blur through Motion Math (Adobe-Dynamics-Media-Group page 21 and 25) and Adobe AfterEffects has the bicubic interpolation filter and motion blur math for spatially or temporally blending of pixels according to the AfterEffects' filters (Adobe-Dynamics-Media-Group page 21 and 25). Therefore Demos-565 and Adobe-Dynamics-Media-Group suggests the claim limitation. Moreover, Demos-203 also teaches spatially and temporally compositing of video frames (Demos-203 column 19-22).

(e) One of the ordinary skill in the art would have been motivated to do this because Gaussian blur filter can be incorporated for spatially and temporally compositing of video frames (Demos-203 column 19-23) in Adobe's AfterEffects Software (Adobe-Dynamics-Media-Group page 21 and 25).

Claim 9:

The claim 9 encompasses the same scope of invention as that of the claim 2 except additional claim limitation that is identical to the claim 6. The claim 9 is subject to the same rationale of rejection set forth in the claim 6.

Claim 10:

The claim 10 encompasses the same scope of invention as that of the claim 2 except additional claim limitation that is identical to the claim 7. The claim 10 is subject to the same rationale of rejection set forth in the claim 7.

Claims 11-14:

Each of the claims 11-14 encompasses the same scope of invention as that of the claim 2. The claims 11-14 are subject to the same rationale of rejection set forth in the claim 2 (*e.g., Demos-203 column 22, lines 56-67; column 23, lines 1-25 a Gaussian blur filter with certain radius along the motion vector crossing the set of the frames wherein the a series of Gaussian filters are placed at single pixel steps along the motion vector line and the motion vector line extends plus and minus half its length centered about the new pixel position center. Therefore, Demos teaches the gaussian blurring radius within the Gaussian blur filter).*

Claim 27:

(a) The claim 27 encompasses the same scope of invention as that of the claim 26 except additional claim limitation of gaussian blurring being performed that blends the colors and images depicted in pixels that are in proximity to one another in each frame.

(b) The Demos-565 and Adobe-Dynamics-Media-Group disclose all claim limitations set forth in the claim 1. However, Demos-565 and Adobe-Dynamics-Media-Group are silent to

gaussian blurring being performed that blends the colors and images depicted in pixels that are in proximity to one another in each frame.

(c) Demos-203 teaches Gaussian blur and the claim limitation of gaussian blurring being performed that blends the colors and images depicted in pixels that are in proximity to one another in each frame (*e.g., Demos column 22, lines 56-67; column 23, lines 1-25 a Gaussian blur filter with certain radius along the motion vector crossing the set of the frames wherein the a series of Gaussian filters are placed at single pixel steps along the motion vector line and the motion vector line extends plus and minus half its length centered about the new pixel position center. Therefore, Demos teaches the gaussian blurring radius within the Gaussian blur filter*).

(d) It would have been obvious to one of ordinary skill in the art to have incorporated the Gaussina blurring of Demos-203 into Demos-565 and Adobe-Dynamics-Media-Group's software such as AfterEffects because Adobe-Dynamics-Media-Group discloses effects filters and motion blur through Motion Math (Adobe-Dynamics-Media-Group page 21 and 25) and Adobe AfterEffects has the bicubic interpolation filter and motion blur math for spatially or temporally blending of pixels according to the AfterEffects' filters (Adobe-Dynamics-Media-Group page 21 and 25). Therefore Adobe-Dynamics-Media-Group suggests the claim limitation. Moreover, Demos also teaches spatially and temporally compositing of video frames (Demos column 19-22).

(e) One of the ordinary skill in the art would have been motivated to do this because Gaussian blur filter can be incorporated for spatially and temporally compositing of video frames (Demos column 19-23) in Adobe's AfterEffects Software (Adobe-Dynamics-Media-Group page 21 and 25).

Claims 28-29:

Each of the claims 28-29 encompasses the same scope of invention as that of the claim 2. The claims 28-29 are subject to the same rationale of rejection set forth in the claim 2 (*e.g., Demos-203 column 22, lines 56-67; column 23, lines 1-25 a Gaussian blur filter with certain radius along the motion vector crossing the set of the frames wherein the a series of Gaussian filters are placed at single pixel steps along the motion vector line and the motion vector line extends plus and minus half its length centered about the new pixel position center. Therefore, Demos teaches the gaussian blurring radius within the Gaussian blur filter).*

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jin-Cheng Wang whose telephone number is (571) 272-7665. The examiner can normally be reached on 8:00 - 6:30 (Mon-Thu).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on (571) 272-7794. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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